

REMARKS

Claims 1-9, 11-19, and 22-32 are pending in the application. Claims 1, 7, and 16 are currently amended. Claims 10, 20, 21, and 33 are cancelled. Applicants respectfully request for allowance of all the pending claims based on following discussions.

Objections to Specification

Claim 33 is objected to under 37 CFR 1.75(c), as being improper dependent form for failing to further limit the subject matter of a previous claim. In response, claim 33 has been cancelled. As such, Applicants respectfully request that the objection be withdrawn.

Rejections under 35 USC 112

Claim 20 is rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 20 is rejected for its recitation of “ignition resources” that lacks antecedent basis.

In response, claim 20 has been cancelled. As such, Applicants respectfully request that the rejection be withdrawn.

Rejections under 35 USC 102/103

Claim 1

Claim 1 is rejected under 35 USC 102(b) as being anticipated by US Patent No. 4,007,715 to Bonnell et al. (hereinafter referred to as “Bonnell”) or US Patent No.

2,993,639 to Foster (hereinafter referred to as “Foster”), and under 35 USC 102(e) as

being anticipated by US Patent Application Publication No. 2004/0112308 to Jones

(hereinafter referred to as “Jones”) or US Patent Application Publication No.

2005/0147509 to Bailey et al. (hereinafter referred to as “Bailey”).

Independent claim 1, as amended, is directed to a vacuum pump comprising:
a stator; a rotor adapted to rotate relative to the stator for pumping fluid from an inlet to an outlet; and a continuous ignition source for igniting fuel within a pumped fluid in the stator to regulate the concentration of the fuel in fluid exhaust from the pump, wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar. Applicants note that the claim limitation “*wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar*” was original recited in claim 10, and is now added to claim 1.

Bonnell, Jones, and Foster fail to teach the claim limitation “*wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar.*” Examiner asserts “Bailey also discloses a pump wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar.” *See, the Office Action, page 5.* Applicants respectfully disagree with the assertion.

Bailey teaches turbo pumps capable of exhausting to a pressure of over 1 torr, or even to over 5 torr. *See, paragraph [0026].* 1 torr is about 1.33 mbar, and 5 torr about 6.67 mbar. The pressure range in which Bailey’s pump operates is far below the range of the claimed invention, i.e., 50 to 950 mbar.

Applicants acknowledge that Bailey places a modifier “over” before the operable pressure levels. However, such modifier cannot be reasonably used to interpret Bailey’s

range from 1.33 to 6.67 mbar as anything close to the magnitude of the claimed range

from 50 to 950 mbar. The context of Bailey's range is a turbo pump with a typical exhaust pressure ranging from 1 to 10^{-2} torr (1.33 to 0.0133 mbar). *See, paragraph [0012]*. A turbo pump can only function when gas behaves in a molecular, instead of viscous, manner. *See, paragraph [0005]*. It requires a low pressure environment, such as one at few mbars, in order for the gas to behave in a molecular manner. It is understood by those skilled in the art that Bailey's turbo pump would not work in a pressure range from 50 to 950 mbar.

Moreover, Examiner asserts that Bailey discloses a vacuum pump comprising a continuous ignition source for igniting fuel within a pumped fluid. *See, the Office Action, page 4*. Applicants respectfully disagree with the assertion.

Bailey discloses dry scrubbers that may use a variety of techniques to remove the unwanted gases including thermal oxidation with or without additional fuel or oxidant. *See, paragraph [0015]*. However, such dry scrubbers are part of an abatement device 130, instead of high vacuum pump 113. *See, FIG. 1*. This differs from the claimed invention, in which the ignition source is part of a vacuum pump.

As such, independent claim 1 is not anticipated by Bonnell or Foster under 35 USC 102(b), nor Jones or Bailey under 35 USC 102(e).

Claim 7

Claim 7 is rejected under 35 USC 102(e) as being anticipated by Bailey.

Independent claim 7, as amended, includes limitations "*wherein the pressure of pumped fluid at the ignition source is in the range from 50 to 950 mbar*" and "*a multi-*

stage vacuum pump comprising... a continuous ignition source.” For reasons as

discussed above, Applicants respectfully submit that claim 7 is not anticipated by Bailey under 35 USC 102(e).

Claim 16

Claim 16 is rejected under 35 USC 102(b) as being anticipated by Bonnell or Foster, and under 35 USC 102(e) as being anticipated by Bailey.

Independent claim 16, as amended, includes limitations “*wherein the pressure of the ignited fuel in the vacuum pump is in the range from 50 to 950 mbar*” and “*within the pump, igniting the fuel to regulate the concentration of the fuel in fluid exhaust from the pump.*” For reasons as discussed above, Applicants respectfully submit that claim 16 is not anticipated by Bonnell or Foster under 35 USC 102(b), nor by Bailey under 35 USC 102(e).

Claims 2-6, 8, 9, 11-15, 17-19, and 22-32

Claims 2-6, 8, 9, 11-15, 17-19, and 22-32 are selectively rejected as being anticipated by Bonnell or Foster under 35 USC 102(b), Jones or Bailey under 35 USC 102(e), or as being unpatentable over Bailey in view of US Patent No. 5,548,862 to Glawion (hereinafter referred to as “Glawion”) under 35 USC 103(a).

Claims 2-6, 8, 9, 11-15, 17-19, and 22-32 depend from independent claims 1, 7 or 16 and include all the limitations recited therein. For the reasons discussed above with regard to the independent claims, Applications respectfully submit that claims 2-6, 8, 9, 11-15, 17-19, and 22-32 are patentable over Bonnell or Foster under 35 USC 102(b),

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Jones or Bailey under 35 USC 102(e), and Bailey in view of Glawion under 35 USC

103(a).

CONCLUSION

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicants do not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

By: /Ting-Mao Chao, Reg. No. 60,126/
Ting-Mao Chao
Attorney for Applicant
Registration No. 60,126

Edwards Vacuum, Inc.
Legal Service – Intellectual Property
2041 Mission College Blvd. Suite 260
Santa Clara, CA 95054

TEL: 1-408-496-1177 ext. 2222
FAX: 1-408-496-1188

Customer No.: 71134